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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,694	06/23/2005	Sung-Jin Kim	249/536	9655

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EXAMINER	
MARSH, OLIVIA MARIE	

ART UNIT	PAPER NUMBER
2617	

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/520,694	KIM ET AL.	
	Examiner	Art Unit	
	Olivia Marsh	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,9,12-14,17 and 19* is/are rejected.

7)☒ Claim(s) *6-8,10,11,15,16 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/23/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1-1 are objected to because of the following informalities:

Claims 1-11 are directed towards a "mobile communications apparatus" comprising a "base station" and "at least two mobile stations" (see claim 1, lines 1-2). The Examiner has determined Applicant intended to claim a mobile communication *system* [emphasis added] comprising a base station and at least two mobile stations and will use this interpretation to apply prior art.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5,9, 12-14,17, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Walton *et al* (U.S. 7,020,110 B2).

As to **claim 1**, Walton discloses:

A mobile communication apparatus **(FIG 1)** including a base station **(104)** having multiple antennas and at least two mobile stations **(106)** having multiple antennas **(column 3, lines 47-55)**,

wherein the base station restores from feedback signals transmitted from the mobile stations weight information determined in the mobile stations, generates from the restored weight information downlink control information ensuring maximum throughput to each of the mobile stations, and selects from among data of all of the mobile stations data of at least one desired mobile station to be transmitted, based on the downlink control information **(column 10, lines 11-19; column 41, lines 64-67; column 42, lines 1-16)**,

each of the mobile stations has at least one mobile station antenna, the base station has at least two base station antennas, and the downlink control information includes mobile station selection information, an optimal basis matrix index, and optimal gain indices **(column 17, lines 55-59; column 23, lines 14-19; column 32, lines 29-34; column 42, lines 11-24)**.

As to **claim 2**, Walton discloses everything as applied in claim 1 above and Walton also discloses:

the base station performs a predetermined signal process on the data of the desired mobile station(s), which are selected based on the downlink control information, matrix-multiplies the processed data by a basis matrix selected based on the downlink control information to generate data signals, adds mobile station bit size information and the pilot channel signals to the data signals, and transmits the added results to the desired mobile station(s) on a frame by frame basis **(column 23, lines 14-29; column 41, lines 16-32)**.

As to **claim 3**, Walton discloses everything as applied in claims 1-2 above and Walton also discloses:

> the predetermined signal process includes modulating and coding the data selected based on the downlink control information, adjusting the gains of the modulated and coded data, and spreading the bandwidths of the gain-adjusted data **(column 42, lines 19-25)**.

As to **claim 4**, Walton discloses everything as applied in claim 1 above and Walton also discloses:

> each of the mobile stations measures the channel downlink characteristics of the base station and mobile station antennas based on the pilot channel signals transmitted from the base station, determines the weight information based on the channel downlink characteristics, converts the determined weight information into one of the feedback signals, transmits the converted feedback signal to the base station, and detects a high-speed downlink shared channel signal in units of a frame based on the channel downlink characteristics and based on mobile station bit size information and data signals received from the base station **(column 41, lines 16-32, 64-67; column 42, lines 1-10)**.

As to **claim 5**, Walton discloses everything as applied in claim 1 above and Walton also discloses:

> the base station comprises:
>
> a feedback information restoration unit **(840)** which restores from the feedback signals received from the mobile stations the weight information of each of the mobile stations and outputs the restored weight information **(column 42, lines 11-18)**;

a downlink control information generation unit **(830)** which generates the downlink control information based on the restored weight information received from the feedback information restoration unit and outputs the generated downlink control information **(column 42, lines 19-24)**; and

a mobile station data selection unit **(834)** which selects from among the data of all of the mobile stations the data of each of the desired mobile stations based on the mobile station selection information, extracts from the selected data an amount of data of each of the desired mobile stations based on a predetermined bit size of each of the desired mobile stations, and combines the extracted data into frames with respect to each of the desired mobile stations **(column 41, lines 16-32; column 42, lines 19-24)**.

As to **claim 9**, Walton discloses everything as applied in claim 1 above and Walton also discloses:

each of the mobile stations comprises:

a channel characteristics measurement unit **(854)** which measures the channel downlink characteristics based on the pilot channel signals received via the at least one mobile station antenna **(column 41, lines 36-40, 50-62)**;

a channel information determination unit **(860)** which determines the weight information ensuring maximum throughput to each of the mobile stations based on the channel downlink characteristics **(column 41, lines 50-62)**; and

an information feedback unit **(854)** which converts the weight information input from the channel information determination unit into the feedback signal and transmits the feedback signal via the at least one mobile station antennas to the base station **(column 42, lines 1-8)**.

As to **claim 12**, Walton discloses:

A method of mobile communications between a base station **(104)** having multiple antennas and at least two mobile stations **(106)** having multiple antennas **(column 3, lines 47-55)**, the method comprising step (a) of:

the base station restoring feedback signals transmitted from the mobile stations weight information determined in the mobile stations, generating from the restored weight information downlink control information ensuring maximum throughput to each of the mobile stations, and selecting from among data of all of the mobile stations data of a desired mobile station to be transmitted, based on the downlink control information **(column 10, lines 11-19; column 41, lines 64-67; column 42, lines 1-16)**,

wherein each of the mobile stations has at least one mobile station antenna, the base station has at least two base station antennas, and the downlink control information includes mobile station selection information, an optimal basis matrix index, and optimal gain indices **(column 17, lines 55-59; column 23, lines 14-19; column 32, lines 29-34; column 42, lines 11-24)**.

As to **claim 13**, Walton discloses everything as applied in claim 12 above and Walton also discloses:

further comprising step (b) of each of the mobile stations measuring the channel downlink characteristics of the base station and mobile station antennas based on the pilot channel signals transmitted from the base station, determining the weight information based on the channel downlink characteristics, converting the determined weight information into the feedback signals, transmitting the converted feedback signal to the base station, and detecting a high-speed downlink shared channel signal in units of a frame based on the channel

downlink characteristics and based on mobile station bit size information and data signals received from the base station **(column 41, lines 16-32, 64-67; column 42, lines 1-10)**.

As to **claim 14**, Walton discloses everything as applied in claim 12 above and Walton also discloses:

wherein step (a) comprises:

(al) restoring from the feedback signals received from the mobile stations the weight information of each of the mobile stations and outputting the restored weight information **(column 42, lines 11-18)**;

(a2) generating the downlink control information based on the restored weight information **(column 42, lines 19-24)**; and

(a3) selecting from among the data of all of the mobile stations the data of the desired mobile station based on the mobile station selection information, extracting an amount of data from the selected data based on a predetermined bit size, and combining the extracted data into frames, each of which has the predetermined bit size, for transmission to the desired mobile station **(column 41, lines 16-32; column 42, lines 19-24)**.

As to **claim 17**, Walton discloses everything as applied in claims 12-13 above and Walton also discloses:

wherein step (b) comprises:

(b1) measuring the channel downlink characteristics based on the pilot channel signals received via the at least one mobile station antenna **(column 41, lines 36-40, 50-62)**;

(b2) determining the weight information ensuring maximum throughput to each of the mobile stations based on the channel downlink characteristics **(column 41, lines 50-62)**; and

(b3) converting the determined weight information into the feedback signals and transmitting the feedback signal via the at least one mobile station antennas to the base station **(column 42, lines 1-8)**.

As to **claim 19**, Walton discloses everything as applied in claims 12-13 above and Walton also discloses:

wherein step (a) comprises:

(al) restoring from the feedback signals received from the mobile stations the weight information of each of the mobile stations and outputting the restored weight information **(column 42, lines 11-18)**;

(a2) generating the downlink control information based on the restored weight information **(column 42, lines 19-24)**; and

(a3) selecting from among the data of all of the mobile stations the data of the desired mobile station based on the mobile station selection information, extracting an amount of data from the selected data based on a predetermined bit size, and combining the extracted data into frames, each of which has the predetermined bit size, for transmission to the desired mobile station **(column 41, lines 16-32; column 42, lines 19-24)**.

Allowable Subject Matter

3. Claims 6-8, 10-11, 15-16, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olivia Marsh whose telephone number is 571-272-7912. The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on 571-272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CHARLES APPIAH
PRIMARY EXAMINER